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Coal Law From the Old World: A Perspective on Land Use and Environmental Regulation in the Coal Industries of the United States, Great Britain, and West Germany

BY ZYGMUNT J. B. PLATER*

I. INTRODUCTION

America's reentry into the Coal Age has been one of the major consequences of the Mideast oil-producing nations' discovery of their collective marketing power, and in this new emphasis on coal the United States is not alone. Like the United States, many industrialized nations with domestic coal reserves had allowed their coal industries to languish under the influence of a low-priced, petroleum-based energy economy and are now hastening to strengthen their coal production.¹ Different nations approach the regulation of their resurgent coal industries in varying ways, however, and these differences can be instructive to American observers, particularly as they relate to land use and environmental control.

Traditionally, coal mining is a dirty business, disrupting both natural and human ecology. It adversely affects air and

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¹ See President's Message, *Energy Independence Authority Act of 1975*, 11 WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS 1151 (1975). In Britain and West Germany, deep mines had been closing in the decade prior to the oil boycotts, unable to compete with imported fossil fuels. Since the boycotts, coal has assumed a major role in the energy planning for each of the national administrations. The British government has planned to invest 600 million over the next few years to increase mining production to 150 million tons per year. In Britain's comprehensive national energy policy, coal has an assured future despite the ongoing development of offshore oil reserves. Routledge, *Warning on Coal Costs Threat From Militant*, *The Times* (London), June 9, 1975, at 18, col. 3. See also R.L. GORDON, *THE EVOLUTION OF ENERGY POLICY IN WESTERN EUROPE* (1970).

water quality, disturbs the terrain, and disrupts existing land use patterns. In the United States, the control of the environmental consequences of coal production is being approached in ambivalent fashion. On one hand, since coal is now recognized as a major energy source for the foreseeable future, the government has been forced to give more serious consideration to basic mining regulation than it did when the industry was a stagnating anachronism. The recent federal surface mining bills testify to this trend.² On the other hand, the energy crisis has been used to justify weakening the standards of environmental control.³ Consequently, the growing body of regulations for American coal mining varies widely from state to state in sophistication and rigor, involving in every case a basic conflict between short-term production goals and long-term standards of environmental quality.⁴

Europe has long been concerned with the external social costs of coal mining.⁵ When faced with the call for increased production, however, it does not find itself in America's regulatory dilemma. The technology, administrative law, and economics of environmental quality control have been better integrated into the production process and can respond without appreciable strain to increased demand. Great Britain and West Germany, for example, have recently increased their coal production with new underground and surface mines, yet these

² H.R. 9725, 94th Cong., 2d Sess. (1976); H.R. 25, 94th Cong., 1st Sess. (1975); S. 425, 93d Cong., 2d Sess. (1974); H.R. 60, 92d Cong., 1st Sess. (1971).

³ See, e.g., Veto message from the President of the United States, H.R. Doc. No. 160, 94th Cong., 1st Sess. (1975).

⁴ This is not to say that land and environmental controls are novel, since surface mining laws have been around since at least 1939. W.Va. Acts ch. 8, § 1 [1939] (now W.VA. CODE. §§ 20-6-1 to 30 (1973)). However, because of market competition between states and the political importance of the coal industry, economic pressures until recently have dominated environmental concerns.

⁵ External costs are costs engendered by a productive process but not accountable to that process in a normal market economy; such costs are passed on to the external environment. See generally B. ACKERMAN, *ECONOMIC FOUNDATIONS OF PROPERTY LAW*, (1975); Brooks, *Surface Mine Reclamation and Economic Analysis*, 6 NAT. RESOURCES J. 13 (1966); Coase, *The Problem of Social Cost*, 3 J. LAW & ECON. 1 (1960); F. Schmidt-Bleek and J. Moore, *Benefit-Cost Approach to Decision-making: The Dilemma With Coal Production*; (Appalachian Resources Project Report No. 23) (1974) [hereinafter cited as Schmidt-Bleek and Moore]. See also Randall and Pagoulatos, *Surface Mining and Environmental Quality: An Economic Perspective*, 64 KY. L.J. (in this symposium) (1976).

new mines appear even more fastidious in their planning and environmental controls than mines opened prior to the energy crisis. With few exceptions, moreover, the British and German mines appear to be a quantum leap ahead of their American counterparts in controlling pollution and subsidence damage, and in the restoration of mined lands.⁶

To some extent, of course, it is unfair to compare American mining practices with European models. Due to geological differences between the coal regions of America and Europe, the application of European coal mining technology to most of the United States is limited. In addition, market conditions are not directly comparable, and the value of land is perceived very differently in the United States and Europe.⁷ The legal framework of mining regulation in those countries, however, is relevant in spite of these distinctions. The standards and procedures by which new mines are planned and managed in Europe have instructive and practical application to the regulatory system now evolving in the United States.⁸

This article, as a preliminary report of a short-term, on-site study of coal mining in the United States, the United Kingdom, and West Germany, is not a comprehensive, comparative analysis of legal institutions in the three countries. Material for the article was gathered by personal observation of the mining operations in the countries surveyed, informal interviews with administrators, and a review of relevant statutes and regulations.⁹ This mix of reportorial and analytical material will serve, it is hoped, as a useful exposition of the administrative structures that regulate coal mining in Great Britain and West Germany, for Europe's coal mining achievements clearly deserve the further attention of private and public participants in the American coal mining industry.

⁶ See notes 16-28 *infra* and accompanying text.

⁷ See notes 121-123 *infra* and accompanying text.

⁸ This article focuses almost exclusively on the environmental and land use controls involved in opening new mines rather than mining law enforcement practices. This comparison is more relevant in light of current American expansion of mining and less restricted by national idiosyncracies in subsequent enforcement practice.

⁹ This article draws on material collected by and on file at the University of Tennessee Environmental Center [hereinafter UTEC].

II. ENVIRONMENTAL EFFECTS FROM COAL MINING IN AMERICA AND EUROPE

The adverse effects of coal mining are generically similar throughout the world. Preservation of water quality is one of the primary problems, as coal particles and acid from the sulphur and pyrites associated with coal deposits are pumped, washed, or leached away from mining sites into neighboring watercourses.¹⁰ Coal mines, in fact, constitute the primary pollution source in Appalachian watersheds subject to mining.¹¹ Although deep mining disrupts land features with its surface operations, transport facilities, and subsidence effects, surface effects are especially severe and widespread in the strip mining of coal. In the 40 years before 1971, more than 1½ million acres in the United States were disturbed by coal mining, 80 percent of which was caused by surface mines.¹² More than one-third of this total received no reclamation even according to the minimal standards then applicable.¹³ Today's reclamation standards, especially in the contour mining of Appalachia's mountains, still permit extensive land disturbance and the existence of long-term effects after mining.¹⁴ Other common destructive effects of mining include increased flooding, damage to roads from coal haulage traffic, agricultural losses, air pollution, and human dislocation.¹⁵

Although extraction problems are similar, Great Britain and West Germany have demanded and achieved a higher standard of reclamation for coal mined areas than the United

¹⁰ Water quality is especially a problem in the Western United States coal region. The large amount of water required and changed in quality by coal operations is doubly significant because of its regional scarcity.

¹¹ See ENVIRONMENTAL PROTECTION AGENCY, PROCESSES, PROCEDURES AND METHODS TO CONTROL POLLUTION FROM MINING ACTIVITIES (1973); APPALACHIAN REGIONAL COMMISSION, ACID MINE DRAINAGE IN APPALACHIA (1969).

¹² UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Mines Informational Circular/1974-8642, *Land Utilization and Reclamation in the Mining Industry, 1930-1971* at 13, 16, and 55. In addition, the total acreage strip mined and the proportionate amount of coal extracted by surface mining are increasing each year. ENVIRONMENTAL PROTECTION AGENCY, ENVIRONMENTAL PROTECTION IN SURFACE MINING OF COAL 15 (1974).

¹³ *Id.* at 16.

¹⁴ See notes 96-97 *infra* and accompanying text. Western coal lands offer severely restricted reclamation possibilities due to the region's lack of rainfall.

¹⁵ For an attempted quantification of some of these costs see Schmidt-Bleek and Moore, *supra* note 5.

States. In West Germany, strip mining takes place in the heart of the Rhineland's best farmland. Rotary bucket-wheel excavators weighing 7000 tons and capable of scopping 200,000 cubic meters of earth a day cut pits several miles wide and 300 meters deep, destroying forests, fields, highways, and villages to produce brown coal, lignite, for the nation's electric utilities. One company alone mines 100 million tons from approximately 1000 acres of land a year.¹⁶ Yet the West German strip mining companies have received international recognition for their mining performance, and in the major coal producing state, North Rhine-Westphalia, virtually total reclamation is achieved.¹⁷ Pits are backfilled as they are mined, with segregated topsoil as a final layer. Forests and fields are recreated, and towns are transferred and resettled.¹⁸ During the mining, roads, utilities, and rivers are rerouted while groundwater from within the mining area is segregated by high volume pumps.

Underground or deep mining in West Germany has similar comprehensive environmental protections. Subsidence damages are carefully predicted, monitored, and mitigated, with statutory provisions for compensation of private property losses.¹⁹ Water pollution from mining is controlled by on-site pollution measures supplemented by treatment plants that process entire rivers to tertiary treatment standards.²⁰ Spoil banks are shaped, forested, and maintained by the mining

¹⁶ *Rheinische Braunkohlenwerke A. G.* (Information Center); BLICKPUNKT BRAUNKOHLE [Focus on Lignite] 6-7 (1973).

¹⁷ BLICKPUNKT BRAUNKOHLE [Focus on Lignite] 16 (1973). See also *Prize for a Stripper*, NEWSWEEK Dec. 1, 1975, at 86.

¹⁸ E. A. NEPHEW, *SURFACE MINING AND LAND RECLAMATION IN GERMANY* 15 *et seq.* (1972). In other German states reclamation is often excellent, but regulations in some areas, including mines adjacent to the East German border, appeared to be less well enforced than in the Rhineland.

¹⁹ Compensation is required for all short and long-term subsidence damages. ALLEGEMEINES BERGGESETZ 24 JUNE 1865, *as amended* [hereinafter cited as A.B.G.] §§ 148-152. This statute has served as the model for mining laws in most other German states. In fact, the Essen State Planning Office still uses a 19th century edition of the statute with modern inserts as its working office copy.

²⁰ See note 35 *infra*. The Emscher river treatment system north of the Ruhr area was the original model for other river associations. Its plant located near the confluence of the Emscher and the Rhine catches sufficient amounts of coal sludge to run a briquette factory which fuels a local power plant. E. KNOP AND H. W. KOENIG, *THE SOLUTION OF DIFFICULT WATER ENGINEERING PROBLEMS BY WATER ASSOCIATIONS* (1970); *Emscher genossenschaft Abwässerdezernat: Emscher River Treatment Plant in Bottrop* 3 (1970), on file at UTEC.

companies' large professional forestry staffs, and some are sufficiently reclaimed to serve as game management areas.²¹ German environmental controls, moreover, are accomplished without direct government subsidy as part of the mining companies' cost of doing business.²²

British coal mining practices demonstrate a similar regard for environmental quality. British opencast surface mines, smaller than their German counterparts, are planned to avoid disruption of valuable surface features, with minimum disturbance to roads, watercourses, and human settlements.²³ Among the safeguards required during the operation of a typical opencast mine are separation and storage of topsoil and subsoil, noise and dust controls, fencing and other access restrictions to keep livestock out of the pits, transplanation of valuable mature trees, water treatment, diversion of water flows, wheel washing for coal trucks leaving the site, baffle embankments for aesthetic controls, and relocation of public footpaths.²⁴ Reclamation not only involves land restoration to extremely high agricultural quality but may also include recontouring the surface to create local parks, lakes, and forests, and the removal of slag and deep mine spoil heaps dating from the 19th century.²⁵

British deep mining also is improving on its earlier performance. Though problems of spoil disposal and subsidence at some old sites remain unresolved,²⁶ new deep mines are designed with an attention to environmental considerations that

²¹ See SIEDLUNGSVERBAND RUHRKOHLENBEZIRK, GRÜNE HALDEN IM RUHRGEBIET [Green Colliery Spoil Banks in the Ruhr] 201-223 (1974).

²² The economic component of the University of Tennessee Environmental Center's coal research project analyzing the complex financing of the German coal industry indicates that indirect subsidies in the form of wage and price supports are woven into the industry's budget. No direct subsidy is provided for reclamation and similar environmental measures. An attempt to gauge the relative importance of indirect supports will be made in the project's final report.

²³ A typical British opencast mine site produces 2 million tons of coal. Opencast Coal Act of 1958—The Anglers Application—Statement of National Coal Board, 19, on file at UTEC.

²⁴ Opencast Coal Act of 1958—Albert Site Authorization—Schedule 2 (August 9, 1974), on file at UTEC.

²⁵ See notes 82 and 85 *infra* and accompanying text.

²⁶ Old mines in the Midlands continually cause road damage and other subsidence effects. At Durham (Seaham) some old mines still dump their spoils into the sea for lack of adequate disposal facilities.

far exceeds American practice. Surface buildings and winding towers are designed for minimum visual obstruction, road and rail haulage hours are regulated, and elaborate water treatment and dust control systems are maintained. In addition, housing and community facilities for miners are part of project planning, and subsidence damages are minimized and repaired or compensated.²⁷

A comparison of European coal industry practices with existing American conditions indicates that European mining pays far more attention to the detrimental effects of coal extraction and to their minimization. The subjective indication of this comparison is that European mines appear to be far more integrated with their locales than those in America. Usually this means that the countryside does not seem dominated by the presence of mining operations, but rather can often maintain its rural agricultural nature, while mining continues in a surprisingly unobtrusive fashion. In functional terms new mines are planned to fit with as little disruption as possible into the human settlements, transportation patterns, agriculture, recreation, and industry around them.

European mining also seems to be integrated in political terms. Although opponents of mining do exist, mining interests appear to be regarded as responsible participants in a common national enterprise rather than as exploitative intruders.²⁸ When mining is completed, the restored mined areas are integrated into the long-term productive needs of the area. These European accomplishments can be attributed in part to administrative procedures, which make the British and German regulatory systems worthy of further examination.

²⁷ See discussion of Selby coal field mining application at notes 65-79 *infra* and accompanying text. The British National Coal Board has agreed that subsidence damage in that mine will be limited to a drop of nine-tenths of a meter despite the fact that the seam is 11 feet thick, through careful excavation and engineering. Notes on Selby Inquiry, April 17-18, 1975, on file at UTEC. Subsidence damages are to be compensated. Coal Mining (Subsidence) Act 1957, 5 & 6 Eliz. 2, c. 59; and The Mines, (Working Facilities and Support) Act 1966, c. 4.

²⁸ The objectors to British coal applications, for example, often phrase their questions in terms of national energy needs and propose mitigation rather than adopting polarized positions of opposition. Notes on Selby coal field inquiry, April 17-18, 1975, on file at UTEC.

III. THE REGULATORY SYSTEM IN WEST GERMANY

As one would expect, the German coal mining administration that has achieved the remarkable results noted has a highly articulated and rationalized structure with multiple layers of investigation and cross-referencing between government agencies and private parties.

The major participants in the coal mining of North Rhine-Westphalia, as in other German mining states,²⁹ include large private mining corporations and a variety of government officials. The most notable private companies are Rheinische Braunkohlenwerke A.G. (Rheinbraun) which monopolizes brown coal production in the state, and Ruhrkohle A.G., the largest of Germany's deep mine companies.³⁰ Mineral rights are entirely owned by the government, and the private corporations mine as lessees, a situation similar to that in the western coal fields of the United States.³¹ Under the terms of the German statutes, persons leasing mineral rights acquire easements over the surface land. The easements are subject either to payment of damages to the owner or a duty to purchase the land at the owner's request.³²

The operation of mineral leases in West Germany is subject to the ongoing review of government agencies, primarily the State Mining Office, which has 11 autonomous district offices (*Bergämter*) and a central office (*Oberbergamt*) in Dortmund. In addition, the State Ministries of Economics and Agriculture,³³ the district governors' offices,³⁴ state and local water

²⁹ West Germany, the German Federal Republic, is a federation of ten highly autonomous states plus West Berlin. Because the states rigorously defend their autonomy, federal involvement in coal mining is indirect and negligible. This article focuses on North Rhine-Westphalia, which holds large deposits of both deep mined bituminous coal and surface mined brown coal, lignite, although other states were studied. The major regulatory difference between North Rhine-Westphalia and other states is the existence of the Brown Coal Committee. See notes 38-44 *infra* and accompanying text.

³⁰ Rheinbraun is a combination of four postwar lignite companies and is now a subsidiary of Rheinische Westfälische Elektrizitätswerke A.G., Germany's largest electrical generating company. Ruhrkohle paradoxically was created in 1968 as a "funeral company," which consolidated 30 companies of varying degrees of economic health in order to close out marginal operations in an orderly fashion. Steel companies own most of Ruhrkohle's stock; cartels appear to be an accepted form of economic organization in Germany. See P. MATHIAS, *FIRST INDUSTRIAL NATION* at 90, 389 (1969).

³¹ *Infra* note 103.

³² A.B.G. §§ 135-147.

³³ The State Mining Office reports to the Ministry of Economics and the Ministry

authorities,³⁵ and the multilevel land planning agencies,³⁶ all have duties associated with mining. In the brown coal area, the state's land planning agencies are supplemented by the Brown Coal Committee, which has special powers in the permit issuance process. Other agencies which also have official duties touching on mining include state forestry, health, power, highway, railway, nature protection authorities, and several federal agencies in observer roles.³⁷ The breadth of agency involvement is indicative of the complexity and comprehensiveness of the regulatory process.

Mining proposals undergo administrative processing at two different stages: First, in the initial permission process to open an area to mining under the planning statutes, and second, in subsequent annual permit procedures to authorize each year's operating plans in compliance with the basic mining law. In both cases the German approach is notably comprehensive.

A. *Planning Permission — the Brown Coal Committee*

Unlike the United States, West Germany is subject to binding land use plans. New areas being opened to mining require initial authorization by state land planning authorities

of Agriculture has extensive duties in reclamation.

³⁴ The district governors have duties and authority in the areas of planning, forestry, conservation, and water pollution.

³⁵ Public river associations have the chief responsibility for ensuring water quality. reporting to the state Ministry of Food, Agriculture, and Forestry, the associations are mandatory cooperatives of all industries in each watershed. They levy charges on each polluter based upon the effluent load of each and are responsible for water purification systems. The river associations originated with the Prussian Emschergerossenschaft Act of 1904. See Knop and Koenig *Water Supply Associations in the Rhine-Ruhr Industrial Region*, in SVR RUHRGEBIET PLÄNE, PROGRAMME, PROJEKTE 29 (1973).

³⁶ North Rhine-Westphalia has been subject to binding land use plans since 1950. For a general view of German planning see Kimminich, *Town and Country Planning Laws in the Federal Republic of Germany*, in *PLANNING LAW IN WESTERN EUROPE*, (J. F. Gardner ed. 1975) [hereinafter cited as Kimminich]. The autonomous states in the Federal Republic of Germany are independent in regard to their land use planning. The particular state land planning agency, such as in North Rhine-Westphalia, is supplemented by a regional land planning agency, in this case by the Ruhr Land Planning Agency which is inferior to the State agency yet overlaps into other states. In addition, there are local land planning agencies which are concerned with matters of local importance.

³⁷ The federal Ministry of Agriculture, for example, has a seat on the Brown Coal Committee. See E.A. NEPHEW, *SURFACE MINING AND LAND RECLAMATION IN GERMANY* 84 (1972).

prior to technical review and granting of permits by the mining authorities.³⁸ The two reviews have much in common, however, and in the case of surface mining the Brown Coal Committee provides a link between them.³⁹ Formed by Brown Coal Regional Planning Law of 1950,⁴⁰ the Committee is comprised of 27 members, representing a variety of interests, who review mining proposals and advise the state planning agency on required amendments to the general land use plan.

Although theoretically an advisory committee intended to make recommendations to the state planning agency, the Committee's composition and activity have made it a practical and politically potent part of the review process.⁴¹ The diversity of its membership insures broad critical analysis of major proposals such as the Hambach mine near Cologne which is currently under consideration.⁴² Before planning approval is given, the Committee must be assured that a mine's energy potential justifies the attendant dislocations, and that satisfactory plans will be made for ongoing environmental control, relocation, and reclamation.

In the course of deliberations, Committee members often make technical objections on matters such as topsoil preserva-

³⁸ See Kimminich, *supra* note 36.

³⁹ Planning permission reviews are dominated by surface mining applications since deep mining sites have long since been designated as such on land use plans. Large scale surface mining is a recent phenomenon affecting surface uses far more extensively than deep mining. No deep mine planning permission cases were encountered in the University of Tennessee Environmental Center's research project. In addition, most surface mining sites needed for the foreseeable future now appear to have received planning permission.

⁴⁰ GESETZ UBER DIE GESAMTPLANUNG IM RHEINISCHE BRAUNKOHLENGEBIET, April 4, 1950 [Rhineland Coal Region Planning Act].

⁴¹ The members of the Brown Coal Committee include: (1) Officials from the State Mining District Offices; (2) five officials from county governments; (3) the Director of the State Mining Office; (4) the State Land Planning Commissioner; (5) an official from the Federal Agricultural Department; (6) the State Land Settlement Director; (7) four representatives of local agricultural interests; (8) three mining unionists; and (9) three officials from the brown coal industry. In addition there are single representatives from the power, crafts and trades, and stoneware industries; a general industrial union; and a local conservation club. It has been suggested recently that water authorities be added to the Committee. E.A. NEPHEW, *SURFACE MINING AND LAND RECLAMATION IN GERMANY* 45 *et seq.* (1972).

⁴² The mine will be a 3 square-mile pit that will necessitate the removal of villages, roads, rivers, and all surface features of the existing settled countryside. Company officials presented the project in complete detail covering the 20 year life of operations to the Brown Coal Committee and requested planning approval.

tion and groundwater patterns and suggest amendments or conditions to the mining proposals. Representing a far broader scope of interests than the mining industry, the Committee is more able to make recommendations to the state planning agency that accommodate the future mining operation to the state planning scheme. The presence of the state mining office on the Committee, moreover, insures that mining considerations are not relegated to later review, adding that office's expertise to the project at an early stage and giving the office a head start on the subsequent mining permit process. The diverse membership of the Committee may also result in broadening investigations beyond the scope of review required by statute. During the Hambach mine review, for example, the queries of one representative of a local government convinced Rheinbraun to prepare a voluntary environmental impact statement, a procedure that added 12 volumes of data to the Committee's deliberations.⁴³ The Committee process is undeniably demanding in terms of time and resources. When planning approval finally issues, however,⁴⁴ virtually every public consideration has been raised and provided for prior to the opening of a region to mining. The resulting predictability of conditions and requirements is valuable to the private entrepreneurs' planning and cost estimations as well as to public agencies.

B. *Mining Office Permit Procedures*

The second stage of review is the annual mining office permit procedure required for both surface and deep mines. It is similar to the planning permit review though more specific. Although this stage is less concerned with the long-term issues covered in general planning authorizations,⁴⁵ an even greater

⁴³ Interview with Rheinbraun officials at Schloss Paffendorf, West Germany, June 10, 1975. The environmental impact statement cost approximately \$50,000.

⁴⁴ Decisions are generally by consensus, and while this system could be interpreted by outsiders as a sign of the Committee's docility, it reflects a very German phenomenon of constructive accommodation between industry and public concerns. In view of the increasingly rigorous reclamation standards required by the Committee, the consensus system hardly appears to be a pushover.

⁴⁵ The mining offices are currently attempting to expand application requirements to include long-term mining plans, a move resisted by industry on the theory that this would be legally binding and too restrictive of their future operations. The current compromise, pending statutory amendment, is for submission of tentative nonbinding long range plans. Report by Trauger, on file at UTEC.

variety of public agencies is involved.

The mining permit procedure has its foundation in the Prussian Mining Law of 1865 as amended over the years.⁴⁶ Under this statute, the Bergamt, the district mining office, is the lead agency for the entire mine regulating process, and the annual mining permit incorporates all official consents necessary to mine.⁴⁷ Having obtained planning permission, the mining corporation files an application with the Bergamt to commence operations and to continue year by year. Applications are far more complex than their American equivalents. They require complete textual and graphic engineering plans for the year's mining operations including maps of coal seams, surface and underground workings, waste disposal areas, and drainage patterns.⁴⁸ The Bergamt, which is often involved in informal prior negotiations with the applicant, then calls for formal negotiations⁴⁹ and on its own responsibility invites the participation of the water authorities, local planning authorities, and other concerned agencies. At a series of informal meetings somewhat resembling collective adjudicatory hearings, the staff of the applicant corporation presents and defends its plans against the rigorous inquiries of each agency. Amendments in plans may be made or conditions attached as necessary. Ultimately the parties reach a consensus and a permit is issued;⁵⁰ the maps and plans submitted become part of the permit and are legally binding.

The strength of the Bergamt review lies in its procedure as well as its personnel. The rigor with which mining plans are criticized, of course, depends in great part upon the profes-

⁴⁶ A.B.G. *supra* note 19.

⁴⁷ *Id.* § 67 *et seq.* In projects crossing district lines, the Central State Mining Office, Oberbergamt, handles applications; otherwise it acts only as an appellate tribunal to district offices.

⁴⁸ *Id.* § 67. The Bergamt can require special information or separate applications to cover special problems posed by particular projects.

⁴⁹ *Id.* § 67 *et seq.* Since a permit not acted upon within 2 weeks is deemed approved by statute, the agency automatically gives preliminary disapproval in order to have sufficient time to review and process the application.

⁵⁰ Though consensus is the norm in Germany, agency disagreements arising in the course of the negotiations can be resolved by referral to higher authority. For instance, differences between the water authorities and the Bergamt can be referred to the State Minister for Economics. Failure of agreement between the applicant and the Bergamt can be appealed to the Oberbergamt. A.B.G. § 68.

sional motivation of the agency representatives in protecting their respective areas of authority and activity, and their individual dedication is especially crucial since meetings are closed and no citizen participation is permitted.⁵¹ But in itself the special nature of the Bergamt review, characterized by a variety of agencies communicating with the state mining office and each other over a set of plans, appears to stimulate an impressive amount of analysis.⁵²

C. *Standards*

There is surprising lack of enunciated permit standards in the German regulatory process. Unlike mining regulations in the United States that stipulate specific reclamation standards, the German process appears to resolve these issues on an ad hoc basis. The Bergamt does issue regulations and guidelines on mining, but these tend to be generally descriptive rather than quantifiable. An administrative guideline on reclamation, for instance, may state: "Final slope gradients are to be arranged so as to harmonize with the surrounding landscape; to avoid landslides and erosion they are to be secured in various ways, especially by suitably located vegetation."⁵³ Such guidelines require the Bergamt and the mining company to prepare specific individual requirements in the drafting and approval of an application's mining plans. Highly particularized consideration for each mining site is substituted for the efficiency of prior existing objective standards, a tradeoff that relies on the integrity and energy of German administrators for its success.

The rational procedures and impressive accomplishments of the German regulatory system do not mean that controversies and shortcomings do not occur. Specific permit require-

⁵¹ Citizens in West Germany are largely restricted to political activity in attempting to affect administrative decisions since proceedings are limited to parties directly interested and the judicial review of administrative actions is limited in scope and rarely feasible. Cf. Kimminich at 167-68, *supra* note 36.

⁵² A typical review results in specific in-depth consideration and agreement on such details as spoil bank construction, composition, land reclamation, on-site and off-site water quality, and traffic consequences.

⁵³ MINISTRY OF SCIENCE AND COMMERCE OF WEST GERMANY, GUIDELINES FOR RECLAMATION OF AREAS NO LONGER NECESSARY FOR MINING June 18, 1974, at 1340, on file at UTEC.

ments are occasionally criticized as unduly harsh by the regulated industry.⁵⁴ Despite elaborate procedures, the Brown Coal Committee or the state mining office may simply fail to raise questions highly relevant to permit determinations.⁵⁵ In some cases they have permitted the implementation of mining permits to fall severely short of required standards.⁵⁶ In summary, however, observations of the German mining experience indicate that the regulatory process raises and implements environmental concerns with a breadth of application, attention to detail, and rigor that strikes an efficient balance with the energy production needs of the state.

IV. THE REGULATORY SYSTEM IN GREAT BRITAIN

Like West Germany, Great Britain has a more articulated and comprehensive regulatory structure for coal mining than does the United States, reinforcing the conclusion that procedures are in part responsible for superior performance in controlling the environmental consequences of mining. The heart of British controls on coal mining⁵⁷ lies in the process of granting or refusing land development permission under one of two applicable statutes. Deep mines are subject to the Town and

⁵⁴ Mining operators east of the Rhine resisted the revegetation standards for spoils banks required as part of mining permit conditions by the Ruhr Land Planning Agency [hereinafter SVR], arguing that maintaining one healthy tree per square meter of surface posed excessive burdens. Public opinion in the media in 1972-73 forced the operators to acquiesce. Interview with Regional Planning Authority representatives at Essen, West Germany, April 23, 1975.

⁵⁵ In one planning application, involving spoil dumping that was permitted to obliterate a famous forest near Cologne, the Brown Coal Committee failed to investigate the applicant's transport cost figures adequately, thus foregoing an economically feasible alternative site. Report by Trauger, *Koenigsdorfer Forest Application*, on file at UTEC.

⁵⁶ A recent controversy involved the "Hoher Meissner" hill, a famous Hessian landmark noted in Grimm's fairy tales and underlain by coal, in which the coal company mined beyond its permit boundaries and refused to reclaim parts of its pit area, alleging the agency's lack of statutory authority to require environmental control retroactively. Although the case was finally compromised at the state government level, it demonstrates the reliance of the German system upon the good faith of all parties concerned. Report by Trauger, *Hoher Meissner, Germany's Largest Strip Mining Controversy*, on file at UTEC.

⁵⁷ As used herein, the term "British" encompasses England and Scotland but not Wales, which has separate coal mining legislation under the jurisdiction of the Welsh Office in Cardiff.

Country Planning Acts,⁵⁸ the land planning system applicable to all forms of development in the United Kingdom. Opencast surface mines are exempted from the Town and Country Planning Acts but are regulated through very similar procedures under the Opencast Coal Act of 1958.⁵⁹ In both cases a single permit effectively incorporates all the official consents necessary to operate a mine.

The process of opening a new mine in the United Kingdom is also more simple because the state itself, through the National Coal Board (NCB), is simultaneously the mineral rights owner and entrepreneur.⁶⁰ The NCB is a government corporation, established by the Coal Industry Nationalization Act of 1946,⁶¹ with extensive rights and duties in national coal production. These include broad powers of condemnation if necessary to develop and work coal seams,⁶² and the obligation to fulfill production quotas at reasonable cost to help relieve the country's energy deficit.⁶³ This combination of title, power, and mining operation in one governmental agency clearly makes

⁵⁸ Town and Country Planning Act of 1947, 10 & 11 Geo. 6, c. 51; as amended in 1959, 7 & 8 Eliz. 2, c. 53; 1962, 10 & 11 Eliz. 2, c. 38; 1963, c. 17; 1968, c. 72; and 1971, c. 78.

⁵⁹ 6 & 7 Eliz. 2, c. 69 [hereinafter cited as Opencast Coal Act of 1958]. Surface mining was exempted from general planning statutes because it was considered a quickly available energy source whose production was particularly tied to short-term national security needs.

⁶⁰ The Coal Act of 1938, 1 & 2 Geo. 6, c. 52, vested all title to British coal as of July 1, 1942, in the government's Coal Committee. Title was then transferred to the National Coal Board in the Coal Industry Nationalization Act of 1946, 9 & 10 Geo. 6, c. 59, which took effect on January 1, 1947. Except for small coal deposits that produce under 25,000 tons per year which may be worked by private opencast operators with the permission of the Secretary of State for Energy, all operations are carried out directly by the National Coal Board (NCB). In the case of opencast surface mining, the NCB uses private contractors to do the excavation and reclamation work.

⁶¹ 9 & 10 Geo. 6, c. 59.

⁶² The Board has the power to lower the land surface through removal of deep mined coal as well as to take land as required for surface facilities. The Opencast Coal Act of 1958 limited condemnation to "compulsory rights" required for mining, which in effect allowed the NCB to mine land while paying a yearly user fee with the land returned to the freeholder upon completion of reclamation. 6 & 7 Eliz. 2, c. 69, § 46(1). The opencast compulsory rights power ended by statutory terms in 1968 but is to be restored in legislation currently pending. Coal Industry Nationalization Act of 1946, 9 & 10 Geo. 6, c. 59, § 36(2).

⁶³ With the ongoing development of North Sea oil fields, Britain hopes to become a net exporter of oil, though coal remains a major part of the nation's projected energy budget. *Supra* note 1.

mining easier.⁶⁴ In spite of its status as an agency, however, the NCB has many of the attributes of West German and American private mining entrepreneurs. In opening a deep mine for example, it must, like a private party, petition local government authorities for planning permission, and the opening of an opencast mine is subject to intensive quasi-judicial intra-governmental scrutiny.

A. The Selby Coal Field and the Town and Country Planning Act of 1947

The recent discovery of Britain's largest single coal field illustrates the procedures involved in an NCB deep mine opening. The Barnsley Seam, a North Yorkshire seam of high grade bituminous coal, had been mined to its known limits over the past 50 years but seemed to taper out in a downward angle south of the town of Selby. In late 1972, however, a routine survey boring revealed that the seam reappeared to the north in a deposit fully 11 feet thick, extending over more than 100 square miles, and containing at least a billion tons of coal.⁶⁵

The Selby coal field mining application was, according to some sources, the biggest project ever to come before the British planning system.⁶⁶ The Selby mine was also the first major British deep mine to come before the planning system, thus testing the efficiency of the British planning process in coal mine regulation.

Like any development request in Britain, a deep mine application can theoretically be handled entirely by local planning authorities. After some informal negotiation, the Selby

⁶⁴ The NCB need not achieve particular profit figures, for example, but can incur expenditures in the public interest on political grounds. Supervision is not an adversary process since review is intragovernmental and NCB production data is public rather than proprietary data. Local government authorities recognize the National Coal Board's governmental stature and will accept NCB's informal "assurances" as to performance in many cases without requesting formal permit "conditions." Interview with Selby inquiry participants, at Yorkshire, England, April 20, 1975. See note 79 *infra* (assurances and conditions).

⁶⁵ BRITISH DEPARTMENT OF ENERGY, COAL INDUSTRY EXAMINATION: FINAL REPORT 9 (1974). The full extent of the coal is as yet unknown, and it is probable that there will be future extensions of the mine beyond current limits, requiring further development approvals.

⁶⁶ The Manchester Guardian, March 26, 1975 (daily ed.).

application was filed with the North Yorkshire County Council's Planning Committee in August 1974.⁶⁷ The basic application for mining permission was simple, a formal two page statement of the NCB's intentions with a description of the location and nature of proposed development activity and requesting specific development permission for the mine entrance structures and satellite shafts. In the Selby case, however, extensive, detailed documentation of the future operation of the mine was annexed to the basic application.⁶⁸ There was substantial question whether officials in the sleepy, rural Selby district or in the newly formed county government,⁶⁹ neither of whom had had any prior experience with coal mining, could handle the complexities of a major coal project. Nevertheless the local authorities quickly established working committees to process the application and set out procedural and substantive requirements for planning approval that demonstrated their seriousness of purpose. Areas were noted in which more technical detail was necessary prior to approval and in which further substantive evidence would be required.⁷⁰ The NCB was required to hire architectural and landscaping consultants to coordinate with and report to the county council and to finance a major study of all water-related consequences. According to established planning procedures, the project application was publicly advertised and official consultations were entered into

⁶⁷ Under British planning law and the Local Government Law of 1972, c. 70, authority is divided between district councils and county councils, the former making specific local design plans, the latter handling all structural planning for major land use concerns including coal mining. For a general introduction to British planning law see *PLANNING LAW IN WESTERN EUROPE* (J.F. Garner ed. 1975).

⁶⁸ The documentation included a layout of coal seams, mine shafts, and tunnels, anticipated production figures, the design and approximate location of surface workings, potential land subsidence, traffic relocation patterns, drainage patterns, and estimates of housing requirements for the expected 2000 to 4000 miners.

⁶⁹ British counties were reorganized to their current boundaries by the Local Government Act of 1972, c. 70.

⁷⁰ The local council requested a full, detailed application, leaving as little as possible to subsequent review, under General Development Order, Art. 5(1) from the Department of the Environment. In particular they were disturbed by a lack of architectural plans for proposed structures, uncertain location of spoils banks, if any, location of satellite shafts, transportation, subsidence, and water consequences. Since the mining area is only 15-45 feet above sea level, subsidence poses definite flood hazards to the farm land because of the nearby North Sea.

with more than 50 public and private agencies.⁷¹ To inform themselves of mining conditions, committee members made research visits to several working mines.

The planning approval for the Selby Project, however, was shortly transferred to a different forum. Despite the impressive preparations by the local authorities, the Secretary of State for the Environment, in November of 1974, "called in" the project for a direct decision, thereby directly submitting the project to the uniquely British administrative procedure of a planning "inquiry."⁷² Without a call-in an application is subject to an inquiry on appeal; with the call-in, the local authorities' initial decision-making role was circumvented. Their active investigations continued, however, in light of the county council's prominent role as a participant and a potential objector in the inquiry itself.⁷³

The inquiry resembles a broad scale evidentiary hearing where the applicant presents its proposal before a hearing inspector⁷⁴ who eventually makes a recommendation to the Secretary of State for the Environment. Throughout the inquiry, the applicant is subjected to rigorous cross-examination and the presentation of opposing evidence from statutory parties, including the local planning authorities, affected landowners, and a variety of other interested parties admitted at

⁷¹ These agencies included the county water authority, the electrical generating board, conservation councils, the Ministry of Agriculture, a waterways association, the Forestry Commission, a landowners association, and neighboring local governments. Many of these later appeared at the inquiry. North Yorkshire County Council Statement, on file at UTEC.

⁷² Ordinarily a planning authority makes its decision on an application, subject to an appeal to the Secretary of State for the Environment. In matters of national importance, as here, the Secretary reserves the right under section 35 of the Town and Country Planning Act of 1947, 10 & 11 Geo. 6, c. 51, to take over the question and proceed directly to an "inquiry." That he did so was a matter of some regret to the NCB and local bodies alike, since they felt that a satisfactory local working arrangement had been created.

⁷³ The primary tactical consequence of the call-in was that it forestalled a dispositive agreement between the local council and the applicant, since only the latter can appeal the local decision. See A. E. TELLING, *PLANNING LAW AND PROCEDURE* 134 (4th ed. 1973).

⁷⁴ Inspectors are typically experienced engineers who specialize in hearing planning appeals. Though formally part of the Department of Environment, they maintain scrupulous insulation from the Secretary's own staff in order to avoid loss of objectivity.

the inspector's discretion.⁷⁵ The Selby inquiry absorbed 37 working days from early April to June of 1975, with extensive presentations by the applicant National Coal Board and the local councils, and appearances by 100 witnesses.⁷⁶ Citizen comments were also received at the inquiry as well as 250 written representations.⁷⁷

Under the pressure of the inquiry, the NCB's plans were scrutinized from a variety of perspectives, including mining technology, national energy requirements, and environmental effects. In the course of the inquiry it became clear that much of the NCB's detailed planning had not been sufficient. Because of this the hearings became an evolutionary process which included a broad and detailed review of the project and reflected the parties' openness to constructive dialogue. The North Yorkshire County Council, a statutory objector, for instance discovered that a high speed rail line was projected for the mine area, and the NCB was prompted to take special precautions and negotiate a different route with the British Rail Corporation. The NCB was also convinced to redesign its surface lighting facilities to avoid ecological effects on insect life in a local marsh,⁷⁸ and several discussion sessions were devoted to reducing the aesthetic impact of winding towers by lowering their height by 4 feet.

The inquiry absorbed large amounts of time and money. The local council alone spent approximately 100,000£ on the inquiry and the inspector's report and recommendation was not filed until the Spring of 1976. The Selby project has been substantially amended under the administrative scrutiny of the inquiry, and the Secretary's approval incorporates a variety of conditions and assurances that were defined during those

⁷⁵ A. E. TELLING, *PLANNING LAW AND PROCEDURE* 253 (4th ed. 1973); G. DOBRY, *REVIEW OF THE DEVELOPMENT CONTROL SYSTEM* (Report to the Secretary of State for the Environment and the Secretary of State for Wales) 109-121 (1975).

⁷⁶ In addition, the intervening parties included the Yorkshire Water Authority, the National Farmers Union, the County Landowners Association, the British Waterways Association, the National Union of Miners, the Council for the Preservation of Rural England, gas and electricity boards, and several neighboring local governments. North Yorkshire County Council Statement, on file at UTEC.

⁷⁷ *Id.*

⁷⁸ A rare bird species, it turned out, was dependent on the marsh's mayflies, which would be diverted from their native habitat by the nighttime illumination at the mine mouth.

sessions.⁷⁹ The virtue of the process is that nearly every important potential problem is raised prior to commencement of a project, through active participation and analysis by various public and private interests.

B. *Opencast Coal Act Procedures*

Opencast mining is proportionately a much smaller part of Britain's coal industry than deep mining, but its controversial nature has meant that all opencast sites may be subjected to an inquiry. Even though planning approval under the Opencast Coal Act of 1958 lies entirely within the Department of Energy, local planning councils, affected owners, and in some cases private citizens can object to a proposal and demand a full inquiry.⁸⁰

In several sites reviewed during the course of the study, it was evident that the ever present prospect of an inquiry for each application compelled the NCB to make extensive prior efforts to avoid local objections. Prior to formal application, NCB liaison staff members establish working relations with affected landowners, neighbors, and local government authorities.⁸¹ Although assurances concerning the replacement of topsoil, the restoration of contours, the re-creation of watercourses, and the preservation of surface features of special in-

⁷⁹ The Selby project has been approved and production will begin in 1980 reaching full production in the latter 1980's. Decision of Sec. of State, Dep't of Environment, M/5069/42/1, March 31, 1976; COAL WEEK No. 15, April 12, 1976, at 3. Conditions become part of the planning authorization and are legally binding while assurances are informal agreements and are only enforceable politically, though they apparently have substantial practical effect. Interview with official of the North Yorkshire Water Authority at Selby, England, April 19, 1975.

⁸⁰ Until passage of the Coal Industry Act of 1975, c. 56, any member of the public could object to an opencast operation if it would affect a public footpath. Opencast Coal Act of 1958, § 18. Now the right to object is reserved to local authorities and owners, lessees, and occupiers of the land. Coal Industry Act of 1975, c. 56, Schedule 4.

The prime concern of objectors typically is surface disruption of mined lands, and the requirements and conditions of the Minister of Energy's approval typically focus on fastidious control of water quality, preservation of unique surface features, and the restoration of topsoil and agricultural productivity.

⁸¹ The standard direction to liaison personnel entering a new area is "find out what the locals want." "Horsetrading" to win local support is part of the planning process. Interview with official of the Opencast Executive at Harrow-on-the-Hill, England, December 14, 1974.

terest are the most important issues, the NCB's negotiated efforts often go further than conservation of existing values. As part of its agreements with local interests, the NCB may undertake major improvements on mined lands in lieu of an inquiry. This has often involved the creation of agricultural land out of old deep mine spoil heaps, the reclamation of derelict polluted ponds and swales, and the construction of local parks. Since opencast sites are far smaller than deep mines and highly profitable,⁸² the NCB can offer major environmental undertakings in order to avoid the delays of an inquiry.

If the prior negotiations are successful, the application is submitted to the Minister for Energy under the terms of the Opencast Coal Act of 1958 with proposed conditions that incorporate the local agreements. Proposals unopposed by local objections are routinely approved without inquiry.⁸³

If local objections continue, an inquiry is held under the same procedures applicable to deep mining, but on a smaller scale. At the inquiry, statutory parties and interveners review the broad environmental and sociological problems that mining will create and the Board's plans for avoidance or mitigation of those problems. Although opencast inquiries typically absorb several days instead of the Selby inquiry's 3 months, regional energy requirements, the adequacy of transportation systems, and agricultural needs are also reviewed. The Inspector's recommendations are given great weight, even though the Secretary has not followed them in every case.⁸⁴

C. *Standards*

In Great Britain as in West Germany, the lack of declared permit and reclamation standards stands in marked contrast

⁸² A ton of opencast coal costs approximately 6.50 per ton to produce realizing a profit of 1.51 per ton, as compared with costs of approximately 10 per ton for deep mined coal. NATIONAL COAL BOARD, NCB ANNUAL REPORT AND ACCOUNTS, 8-9 (1974).

⁸³ National considerations are incorporated into the Minister's decision-making through staff consultations with related industry boards, but typically the scope of opencast proposals minimizes such considerations.

⁸⁴ In the case of the Lofthouse opencast site, the NCB reduced the scope of its workings from an original projection of 600,000 to 155,000 tons of coal. Despite the Inspector's affirmative recommendation, the Secretary decided that the diminished amount of coal did not justify the amenity damages that mining would cause. Letter from Department of Trade and Industry to the NCB, June 9, 1972, on file at UTEC.

to state mining laws in the United States. Permits and conditions in both deep and surface mining are shaped by a dialogue between the applicant and interested parties. The standards, furthermore, are stated in subjective rather than objective terms.⁸⁵ Since the standards for controlling reclamation are subjective, mutual trust and the sharing of goals between the various national agencies, the NCB, and local authorities who enforce the mine regulations is necessary.⁸⁶ The lack of enforcement actions against opencast operations since 1958 indicates that this regulatory approach is working.⁸⁷ After the energetic arguments over coal mining proposals which occur in the review and inquiry process prior to the issuance of mining permission, subsequent operations and enforcement appear to implement the planning results in pro forma fashion.

V. AMERICAN COAL REGULATION

A definitive analysis of the land use and environmental law of American coal mining is beyond the scope of this article.⁸⁸ A brief review of state and federal coal regulation, however, can provide some relevant comparisons with European methods.

⁸⁵ Surface mined land, for example, must be reclaimed so that it will "be reasonably fit for use as agricultural land." Opencast Coal Act of 1958, § 2(2). In practice that judgment is made by the Ministry of Agriculture 5 years after the close of operations.

⁸⁶ Under the Town and Country Planning Act of 1971, c. 78, § 87, violators of permits or conditions are restrained by issuance of enforcement notices by local planning authorities, which can be prosecuted in court if the violation continues. See A.E. TELLING, *PLANNING LAW AND PRACTICE* 166 *et seq.* (1975). Deep mine enforcement follows the same procedure. Interview with Department of the Environment official in London, England, December 16, 1974.

⁸⁷ The NCB's reclamation accomplishments and the aggressive negotiating stance of local authorities indicate that the lack of enforcement actions is not to be explained in terms of local laxity. In spite of its predecessor's bad reputation from wartime opencast operations, the Opencast Executive of the NCB has established a positive reputation based upon its reclamation efforts and creation of amenities on mine sites. The result is that some communities with unreclaimed lands now actively encourage mining. In addition to this, the Government has turned to the Opencast Executive for advice on restoration of disturbed areas generally. Interview with official of Opencast Executive at Harrow-on-the-Hill, England, April 17, 1975. See Stevens, *Report on Derelict Lands*, to be issued 1976.

⁸⁸ That task will be treated further in the University of Tennessee Environmental Center's research project final report.

The regulation of coal mines in the United States is a highly balkanized system, involving a multiplicity of agencies functioning at different levels and operating with different perspectives and standards within states and in different parts of the nation. Apparently this system has not provided a satisfactory level of environmental quality, since the United States, unlike Great Britain and West Germany, has recently witnessed persistent attempts to improve its system of coal mining regulation.⁸⁹

In the regulation of the process of opening new coal mines, it is initially notable that there is no coordination among American coal-producing states.⁹⁰ To some degree this hinders each state's ability to regulate the industry effectively.⁹¹ Furthermore, no coal producing state has an enforceable general land development planning system that would fit coal mines into a coordinated statewide plan.⁹² Instead, each mining application is presented individually to a variety of state agencies and authorization proceeds in piecemeal fashion.

Typically, the only direct environmental review that deep mine applications receive is through water pollution permits.⁹³ In addition the regulation of subsidence and spoil banks is rare⁹⁴ and the few available indirect controls are inadequate.⁹⁵

⁸⁹ *Supra* note 2.

⁹⁰ Though the Interstate Mining Compact includes most established mining states as signatories, it has no substantive powers and its functions are limited to studies and recommendations. *See, e.g.*, KY. REV. STAT. 350.300-.310 (Supp. 1974) [hereinafter cited as KRS]; TENN. CODE ANN. §§ 58-1801 to 1803.

⁹¹ Competition between Appalachian and Western States with coal deposits for the economic benefits of the coal industry can result in mutual dilution of environmental standards. The same phenomenon in air and water pollution in the 1960's prompted the nationwide minimum standards of the Federal Clean Air Act Amendment of 1970, 42 U.S.C. § 1857 *et seq.* (Supp. IV, 1974), and the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. §§ 1251 to 1376 (Supp. IV, 1974).

⁹² Strip mines can be included as "Areas of Critical State Concern" in the overall planning scheme of the A.L.I. MODEL LAND DEVELOPMENT CODE; *see* notes to § 7-201 (Proposed Official Text and Commentary, 1975). Wyoming, however, has enacted a state land use planning law requiring the development of local land use plans. Wyo. STAT. §§ 9-849 to 9-862 (1975 Cum. Supp.).

⁹³ *See, e.g.*, KRS § 224.034 (Supp. 1974). Kentucky has proposed regulations, which are now at the Department for Natural Resources and Environmental Protection in Frankfort, Kentucky, for the regulation of the surface effects of deep mining. Deep mine operations are presently regulated through health and safety acts such as 30 U.S.C. §§ 801-877 and KRS ch. 351. (1971). (Supp. 1974).

⁹⁴ Pennsylvania appears to be the only state with an antisubsidence law. The

State regulation of surface mining is more comprehensive, however. Most states require special strip mining permits, which are issued by surface mining agencies according to preordained standards after an agency review of the entire mining proposal. The state regulation of surface mining is particularly criticized as inadequate, however,⁹⁶ and although this may be attributed in part to inefficient administration of existing regulations or to industry inattention or evasion, a greater fault would seem to lie with inadequate statutory review procedures as well as substantively diluted standards.⁹⁷

Procedurally, the strip mine permit process in this country does not attempt a comprehensive review. No statute appears to require consultation with local government authorities in areas proposed for mining, and most do not require consultation with other state level agencies.⁹⁸ Since the granting of the mining permit is usually not the result of coordinated deliberation among agencies and interested parties, the permit granting agency's final decision need not take into account their different points of view.⁹⁹ In these circumstances, the permit

Bituminous Mine Subsidence and Land Conservation Act of 1966 requires a review of mining plans, assurances of subjacent support for designated surface features, and the issuance of a permit prior to mining. PA. STAT. ANN. tit. 52, §§ 1406.1-19 (Purdon's Pamphlet 1975-76). This statute provides an interesting epilogue to *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922). See also PA. STAT. ANN. tit. 52, §§ 631, 661 *et seq.* (1935) (anthracite mining laws). Pennsylvania also seems unique in its Coal Refuse Disposal Act of 1968, which regulates spoil banks. PA. STAT. ANN. tit. 52, § 30.51 *et seq.* (Purdon's Pamphlet, 1975-76).

⁹⁵ Since mines rarely occur in areas subject to zoning or other land development controls, local authorities are relegated to indirect regulation by means of road weight limits, property tax assessments, and coal severance taxes. These indirect controls are insufficient to provide a meaningful consideration of mining problems.

⁹⁶ See CENTER FOR SCIENCE IN THE PUBLIC INTEREST, ENFORCEMENT OF STRIP MINING LAWS (CPSI ENERGY SERIES VIII, 1975).

⁹⁷ Allowing the dumping of overburden on slopes during contour mining in mountainous areas was noted by one visiting representative of the British Department of Energy as unthinkable in the European context. Interview with Charles Tebay in Knoxville, Tennessee, February 1975. Reclamation bonds have been justly criticized as insufficient to insure adequate reclamation. Schmidt-Bleek and Moore at 20-21, *supra* note 5.

⁹⁸ Some states do provide for limited multi-agency consideration. See, e.g., KRS § 351.175 (Supp. 1974) (certification of transportation plan by bureau of vehicle regulation); TENN. CODE ANN. § 58-1544(7) (1968) (water quality permit required); VA. CODE ANN. §§ 45.1-.205 (1974) (discretionary consultation with other state agencies).

⁹⁹ The American counterpart to the European practice of seeking a consensus that to some extent accomodates opposing viewpoints is limited to situations where permits

application review is a circumscribed process, rarely considering the full range of human and environmental effects to be anticipated. Problems arising later are handled, if at all, through subsequent enforcement measures or private tort actions.¹⁰⁰

Federal regulations add a further layer of complexity to the administrative process. The recently vetoed federal strip mine bills would have added federal requirements to state mining regulation¹⁰¹ as do the Federal Water Pollution Control Act Amendments of 1972.¹⁰² By far the most interesting federal environmental regulation of coal mining, however, appears in the rules applicable to federal coal lands, which comprise 85 percent of the nation's low sulphur coal reserves and are located primarily in the western states.¹⁰³ These coal fields resemble their European counterparts geologically and legally since the mineral rights are owned by the government and private mining companies must acquire the right to mine coal by lease or patent subject to federal regulatory standards.¹⁰⁴ Due to the

are required from other agencies and where public hearings are held. *See, e.g.*, Public Hearings in Frankfort, Kentucky on October 9, 1975, on proposed regulations on "The Surface Effects of Underground Mining," conducted pursuant to KRS 350.028(2) (Supp. 1974).

¹⁰⁰ Subsequent enforcement procedures such as collecting the bond due to violations of the regulations are economically wasteful because it is generally cheaper to prevent environmental disruption than to remedy a violation after it has occurred.

Tort claims are often not a deterrent given to destruction in light of the broad construction given to mineral rights. *See Schneider, Strip Mining in Kentucky*, 59 Ky. L.J. 652 (1971-72).

¹⁰¹ The 1974 Federal Strip Mine Bill would have provided for the imposition of federal standards requiring consideration of various environmental effects both on and off the site, as well as strengthening the standards currently required by most states. H.R. 25, 94th Cong., 1st Sess., §§ 501-515 (1975).

¹⁰² 33 U.S.C. § 1251 *et seq.* (Supp. IV, 1974).

¹⁰³ *Sierra Club v. Morton*, 514 F.2d 856, 862 (D.C. Cir. 1975). *See Proposed Dept. of Interior Regs.* §§ 3041.0-1 to 3041.8, and 211.1 to 211.74, 40 Fed. Reg. 41125-41138 (1975) [hereinafter cited as *Proposed Federal Mining Regulations*].

¹⁰⁴ *See Mineral Lands Leasing Act of 1920*, 30 U.S.C. § 181 *et seq.* (1970); *Mineral Leasing Act for Acquired Lands*, 30 U.S.C. § 351 *et seq.* (1970); *Mineral Location Act of 1872*, 30 U.S.C. § 22 *et seq.* (1964) (governing lode and placer patents); *The Reorganization Act of 1946*, 5 U.S.C.A. Appendix at 188-189 (1967) (competitive leases); and *Proposed Federal Mining Regulations*. With the exception of some registration of mining claims acts, state laws do not apply to federal mining, though this may be changed by the *Proposed Federal Mining Regulations*. UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Mines Informational Circular/1970-8482, *Summary of Mining and Petroleum Laws of the World* at 35-36.

drastic environmental changes that attend the development of thinly populated western coal fields,¹⁰⁵ federal regulatory controls are currently undergoing major expansion.¹⁰⁶ On their face the new regulations appear far broader and more detailed than prior existing federal and state controls. Preliminary mining plans and a technical examination and environmental analysis (TE/EA), for example, must precede the initial grant of a lease by the Bureau of Land Management¹⁰⁷ and a full scale environmental impact statement is required where major environmental effect is likely. The leases, licenses, or exploratory permits to be issued by the Bureau of Land Management are subject to fairly stringent environmental standards on water quality, land disturbance, and method of operation.¹⁰⁸ Prior to actual mining operations, a complete, detailed mining plan must be submitted,¹⁰⁹ and the issuance of environmental impact statements may be necessary when regional environmental consequences are possible.¹¹⁰

The new rules appear stringent, but incorporate shortcomings which may or may not be remedied in practice. First, permit and leasing decisions do not have to follow the optimum course of action set out in environmental impact statements, since environmental impact statements are generally interpreted judicially as procedural rather than substantive strictures upon administrative action.¹¹¹ Further, the rules allow

¹⁰⁵ A federal court has noted that Western coal development will affect regional water supply and quality, air quality, wildlife, population distribution, and economic structure, as well as disrupting the surface of now fertile land. The new development will include mines, power plants, power grids, coal gasification plants, railroads, aqueducts, pumping plants, reservoirs, dams, and urban development. *Sierra Club v. Morton*, 514 F.2d 856, 862 (D.C. Cir. 1975), *U.S. App. Pndg.*

¹⁰⁶ See generally Proposed Federal Mining Regulations.

¹⁰⁷ Proposed Federal Mining Regulations, §§ 3041.1-1 to 3041.21 at 41128-29.

¹⁰⁸ *Id.* § 3041.0-7 at 41126-28.

¹⁰⁹ *Id.* § 211.10 at 41132-33.

¹¹⁰ § 102(2) of the National Environmental Policy Act, 42 U.S.C. § 4332(2) (1970), requires the issuance of a comprehensive environmental impact statement (EIS), for "major federal actions significantly affecting the quality of the human environment." However, there is some controversy as to whether the regional EIS's have adequately weighed the environmental impact of the leasing of federal coal lands. Speech by Bruce J. Terris in Washington, D.C. to the American Association of Law Schools, Environmental Section, Dec. 29, 1975.

¹¹¹ EIS's are generally interpreted judicially as procedural rather than substantive restrictions on administrative action. See, e.g., *Calvert Cliff's Coord. Comm'n v.*

permits to be issued prior to final mining plans, and the scope of participation in permit reviews may be restricted. Citizens, for example, have no right to participate in the process, and while a number of agencies may be consulted, different agency procedures need not be coordinated.¹¹²

The effectiveness of the proposed federal regulations in inserting a proper environmental component into the mining equation will depend on the attitudes and actions of the enforcing officials. The Bureau of Land Management could deny leases or permits to mine federally owned coal or attach specific conditions to the granting of leases that would resolve potential problems raised by either regional environmental impact statements or the particular technical examination and environmental analysis.¹¹³

VI. DIFFERENCES BETWEEN THE AMERICAN AND EUROPEAN MINING EXPERIENCES

This analysis has related differences in environmental performance to differences in regulatory structure. Other distinctions exist, however, that might explain the apparently superior performance of European mining. There are, for instance, geological differences that limit the use of European mining technology, although there are areas in the United States in which the German strip mining methods could be used.¹¹⁴ Some German and British strip mines with coal seams of comparable depth and thickness to those in American mines, however, are reclaimed according to much higher environmental stan-

United States A.E. Comm'n, 449 F.2d 1109 (D.C. Cir. 1971); *McQueary v. Laird*, 449 F.2d 608 (10th Cir. 1971). Cf. ENVIRONMENTAL LAW INSTITUTE, Anderson, *The National Environmental Policy Act*, in FEDERAL ENVIRONMENTAL LAW 238 (E. Dolgin and T. Guilbert eds. 1974).

¹¹² Citizens only have the right to inspect and to comment upon proposed leases or permits. Proposed Federal Mining Regulations, § 3041.5 at 41129.

¹¹³ The environmental impact statement is not mandatory under the National Environmental Policy Act § 102(2), 42 U.S.C. § 4332(2) (1970). The technical examinations and environmental analysis (TE/EA) are required under the Proposed Federal Mining Regulations, § 3041.2 at 41128-29.

¹¹⁴ ILLINOIS MINING INSTITUTE PROCEEDINGS, J. HUEY, *Development and History of Wheel Excavators in the USA*, 65-90 (1964).

dards,¹¹⁵ indicating that geological differences alone are not controlling. Neither do economic differences control. Although there is a relative lack of market competition in both Britain and Germany, and government subsidies are sometimes available to support certain environmental costs,¹¹⁶ American coal mining is still more profitable than European mining in corporate accounting terms.¹¹⁷ The absorption of greater reclamation expenses by European mining as a cost of doing business must be explained in other terms.

Sociological and political differences better explain some of the variations among the three countries. The British and German civil services which implement the coal regulations appear to be less political than their American counterparts.¹¹⁸ In addition the American agencies often seem to regard their regulatory duties as a balancing of interests rather than as a literal enforcement of statutes and regulations as they are written.¹¹⁹ In general, the European administrators appear to be more fastidious and professional in carrying out their duties; European regulatory agencies might very well duplicate their achievements using American mining regulations.¹²⁰

In addition to the cultural differences between civil services, the difference in mining regulation and the results of that regulation may be further explained by the value the different

¹¹⁵ German lignite often lies in seams 100 feet thick under 30 feet of topsoil, which facilitates more economical removal methods through the use of larger machines. Often, however, in both Germany and England the depth of the coal seam and its fractured nature offset the cost advantages of seam thickness for both deep and surface mining. See Report by Trauger, *German Surface Mining in Hessen and Brunswick*, on file at UTEC.

¹¹⁶ In Britain government subsidies are available for up to 85 percent of the total reclamation costs where mining is conducted on previously derelict (unreclaimed) mining lands. Interview with British Department of Environment official in London, England, Dec. 16, 1974. Cf. note 22 *supra*.

¹¹⁷ These conclusions are drawn from research by R.A. Bohm which will be part of the University of Tennessee Environmental Center's research project.

¹¹⁸ The German administrators indicated that, as with the British civil servants, enforcement proceedings were strictly between themselves and the mining corporations and that they did not have to adjust their regulations because of outside political pressure. Interviews with deep mine reclamation officials at Essen and Bochum, West Germany, December 21, 1974 and April 23, 1975.

¹¹⁹ See CENTER FOR SCIENCE IN THE PUBLIC INTEREST, ENFORCEMENT OF STRIP MINING LAWS (CPSI Energy Series VIII, 1975).

¹²⁰ This conclusion is based on the author's personal observation of the respective regulatory agencies in action.

cultures attach to land. Britain and Germany do not allow short-term economic interests to dominate their land use policies because land is a valuable and scarce long-term economic asset to them. In Germany, for example, where strip mine reclamation is now only narrowly profitable, the mining companies never considered anything less than full reclamation, even when it operated at a net loss.¹²¹ In landrich America, the finiteness of land is still unappreciated. Reclamation, it is often argued, is not an economically efficient or reasonable goal, since the cost of reclaiming an acre of Appalachian countryside would exceed its present market value.¹²² In contrast, the British regard present market value as an inadequate reflection of the intrinsic value of land as a long-term resource.¹²³

VII. APPLYING EUROPEAN CONCEPTS TO AMERICAN REGULATORY PROCESSES

Notwithstanding cultural distinctions, European coal regulations apparently offer structural advantages over current American regulatory practices. National land use planning is one source of the European ability to consider all major development proposals, through examinations of their physical, social, economic, and environmental effects. As West German and British mining demonstrates, national planning can be the basis for the efficient integration of new coal mines into the nation's energy policy and into present and future uses of the land. Current land use planning in the United States is primarily an ad hoc local affair and meaningful state land planning systems have been adopted in only a few areas.¹²⁴

¹²¹ Interview with Rheinbraun executive at Schloss Paffendorf, near Cologne, West Germany, June 23, 1975.

¹²² See Schmidt-Bleek and Moore, *supra* note 5. Ongoing research at the University of Tennessee Environmental Center seems to indicate that these external costs may well exceed the cost of reclamation. A relevant note: the same acre of coal land with an average 3 foot seam produces 3,000 tons of coal, at \$20 per ton it produces gross revenues of \$60,000.00.

¹²³ Interview with Mr. D.G. Davison, of the NCB Opencast Executive, at Harrow-on-the-Hill, England, April 16, 1975.

¹²⁴ The demise of the 1973 federal land use bill has postponed nationwide land use planning. S. 268, 93d Cong., 1st Sess. (1973). See ENVIRONMENTAL POLICY DIVISION, CONGRESSIONAL RESEARCH SERVICE, *National Land Use Policy Legislation, An Analysis*

Lacking such comprehensive land planning systems, it is more realistic to propose specialized state coal mine development statutes for America that incorporate features of the European systems. In essence this would entail a comprehensive master permit proceeding in which a hearing examiner or committee of examiners would investigate the full range of issues arising in the opening of a new mine. Mandatory participation would be required of specified agencies and public bodies with liberal opportunity for citizen participation. Final binding approval would incorporate standards and conditions particularly tailored to the requirements of each site, arrived at through consideration of the full range of interests represented at the hearing. The theory of such specialized legislation, as opposed to general development planning, is that coal mining represents a development situation of particularly critical governmental concern.¹²⁵ With such a restricted scope of application, coal mine application review statutes are unlikely to arouse the violent opposition faced by general land use bills. The form of the legislation could be drawn from present statutes that deal with other specific land development situations.¹²⁶

One of the most notable features of the European coal review process is the master permit that embodies all official consents necessary to mine. This innovation would improve current American state and federal practices by avoiding existing regulatory complexity and duplication. It is conceded that a master permit procedure focusing all regulatory interests and public intervention on a proposal at a single proceeding might impose heavier burdens on mining applicants than do current fractionalized procedures. The waste of time and resources due to multiple administrative procedures could be avoided, however, and with final permit approval the mining companies would be more certain in their operations since, absent a change of circumstances, a master permit would fix all legal requirements during its effective period. The ABA has sug-

of Legislative Proposals and State Laws (1973); ALI MODEL LAND DEVELOPMENT CODE (Proposed Official Text and Commentary, 1975); see, e.g., WYO. STAT. §§ 9-849 to 9-862 (1975 Cum. Supp.).

¹²⁵ ALI MODEL LAND DEVELOPMENT CODE, notes to § 7-201 (Proposed Official Text and Commentary, 1975).

¹²⁶ See, e.g., 38 MAINE REVISED STAT. ANN. §§ 481-488 (Supp. 1975) (subdivision development regulations that require site planning prior to construction).

gested the unitary review approach in other contexts, and its adoption in the United States would not seem to require any fundamental change in the American administrative system.¹²⁷

The effectiveness of a single proceeding for issuing a master permit depends, of course, on the nature of the proceeding itself. In addition to requiring comprehensive participation, an element adequately demonstrated in the British and German systems, the proceeding must be truly balanced in its resolution of issues. The European method emphasizes consensus decision-making where the planning committee, mining office, or inspector seeks to identify the best solutions objectively through compromise and negotiation rather than by choosing the position of one adversary over another. To avoid the problems posed by the latter alternative, a format must be achieved in which all issues are raised and no interest dominates; mining and environmental interests must be equally subject to compromise. In Britain, it is interesting to note that this approach is served by the inquiry inspector's disinterested role. Backed by expert consultants and carefully balancing all relevant factors, the inspectors must submit a comprehensive recommendation with proposed standards and conditions and hence can leave no issue undeveloped. If a hearing examiner in an American mine development proceeding had a similarly detailed mandate, the adversary procedures currently common in administrative hearings would have to change.

Such an administrative change would also affect the standards governing mining development approval. In Britain and West Germany, officials faced with comprehensive mining applications are thereby constrained to incorporate an equally comprehensive range of standards in their review and permit decisions. By the same token European mining permit standards are individualized to each specific mine, an improvement of the standardized regulatory procedures currently applied in most states. By individualizing permit standards, the Europeans avoid the American problem of statewide standards that must be diluted in order to be generally applicable and

¹²⁷ AMERICAN BAR ASSOCIATION, Special Committee on Environmental Law, Development, and the Environment, *Legal Reforms to Facilitate Industrial Site Selection*, 4-9, 45 *et seq.* (1974).

end up as industry norms rather than proscribed maximum limits.

Public participation in the mining review process is generally discretionary in all three countries. In Germany, local government representatives seem to provide sufficient representative participation for local citizens.¹²⁸ In Britain, although citizens are unable to intervene as of right in inquiries, it has been the practice since 1964 to encourage public participation through a policy which seeks to avoid later controversy and litigation.¹²⁹ Given the litigious nature of American environmentalists, a similar policy to encourage public participation at an early stage of the planning process to forestall later problems should be at least equally relevant.¹³⁰

It is true that European comprehensive review procedures and high reclamation compliance standards generate high costs. The cost of the Selby coal field inquiry to the objectors was \$200,000, a figure that was undoubtedly equaled by the

¹²⁸ Interview with official of North Rhine-Westphalia Land Planning Office at Essen, West Germany, April 22, 1975.

¹²⁹ See G. DOBRY, REVIEW OF THE DEVELOPMENT CONTROL SYSTEM (Report to the Secretary of State for the Environment and the Secretary of State for Wales). Affected landowners are entitled to intervene in the mining review under the Town and County Planning Act of 1971, c. 78, § 29.

¹³⁰ The public hearings that are often required by states are held only when new regulations are formulated and not when mining permit applications are being considered, thus preventing public input on individual permits. See, e.g., KRS 350.028(2) (Supp. 1974). Some states have provided statutory standing to sue for citizens when the environment is threatened. MICH. COMP. LAWS ANN. § 691.1202 (1968). See Sax and DiMento, *Environmental Citizen Suits: Three Years Experience Under the Michigan Environmental Protection Act*, 4 ECOL. L.Q. 1 (1974). The Alaska pipeline litigation demonstrated that public intervention can be a part of a constructive review process. *Wilderness Society v. Morton*, 479 F.2d 842 (D.C. Cir. 1973) (en banc), cert. denied, 411 U.S. 917 (1973).

Questions of permit duration, enforcement, and judicial review are less instructive in comparative terms. In the former case, German practice is to require annual mining permits, while British authorizations are open-ended, limited only by their terms. There is some indication that the limited one-year term of German permits is disadvantageous in planning terms, but annual review does facilitate careful tailoring of mining plans and enforcement. The duration of permits is probably best determined by each jurisdiction in light of its review and enforcement capabilities. Enforcement likewise is likely dependent upon each nation's civil service and corporate respect for law, commodities which are generally not considered exportable. In the same way, the scope and standard of judicial review of administrative decisions are highly particularized to each country. Presumably the record and findings of adjudicatory hearings in the United States would be reviewable under the traditional standards of the Administrative Procedure Act and its state equivalents.

National Coal Board permit applicants.¹³¹ Although it is difficult to ascertain the administrative costs of an average British inquiry, it takes more than 60 weeks to process on appeal, and Britain's total yearly planning costs approach \$80 million.¹³² Environmental control costs appear to be correspondingly high, since approximately 5 percent of the total revenue from German surface mines is spent on reclamation¹³³ and 25 percent or more of a British opencast mine's total operating budget may reflect reclamation and other environmental expenditures.¹³⁴ Despite these large costs, it appears that the present and projected demand for coal is sufficiently strong to allow surface mine reclamation expenses to be absorbed into the cost of extracting coal.¹³⁵ In Europe, total reclamation is a normative decision not directly responsive to economic pricing, while in the United States the control of adverse environmental effects from mining must be justified for the foreseeable future in terms of tangible social costs avoided.¹³⁶

VIII. CONCLUSION

The administrative procedures of Great Britain and West Germany in opening new coal mines have demonstrated a capacity for a high level of performance in land use planning and environmental control. Although American mining has failed

¹³¹ Interview with North Yorkshire County Council spokesman, at Selby, Yorkshire, April 17, 1975.

¹³² G. DOBRY, REVIEW OF THE DEVELOPMENT CONTROL SYSTEM (Report to the Secretary of State for the Environment and the Secretary of State for Wales) 44 (1975). An attempt will be made to determine corresponding German administration costs in the University of Tennessee Environmental Center's research project.

Although the planning costs are approximately \$80 million, development projects worth \$10 billion are processed annually. Also with more experience in the comprehensive review procedures, the time for processing applications should be reduced. G. DOBRY, REVIEW OF THE DEVELOPMENT CONTROL SYSTEM (Report to the Secretary of State for the Environment and the Secretary of State for Wales) 56 (1975).

¹³³ Interview with a North Rhine-Westphalia land planning official in Essen, West Germany, April 23, 1975.

¹³⁴ Interview with Charles Tebay, representative of the British Department of Energy, in Knoxville, Tennessee, February, 1975.

¹³⁵ See Randall and Pagoulatos, *Surface Mining and Environmental Quality: An Economic Perspective*, 64 Ky. L.J. (in this symposium) (1976). Deep mines appear to have smaller margins for environmental expenditures than do surface mines.

¹³⁶ Notes 121-123, *supra* and accompanying text.

to equal European performance in both of these areas, it is unnecessary to make invidious comparisons or to castigate private and public participants in the coal mining process in America. It is more relevant to realize that although some of this European effectiveness is based upon basic differences between America and the European nations, it is also a result of the British and West German regulatory format. American mining could profitably import some of these procedural elements to avoid duplication and to ensure systematic regulatory consideration of the array of issues presented by the current expansion of coal mining. Environmental integrity and economic practicality would both be served by such comprehensive rationality in administrative proceedings.